Research Article

Assessment of Pharmacy Students' Satisfaction towards Pharmacotherapy Lectures Delivered at the University of Gondar, Gondar, Ethiopia

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Background. Quality healthcare can be assured by fostering quality teaching-learning process. Students are well-equipped to judge the quality of the teaching-learning process. Consequently, students' satisfaction should be considered for the improvement of quality teaching. *Objective*. The study aimed to explore how far the University of Gondar (UoG) provides quality pharmacy education based on the perspective of students using the validated Instructional Skills Questionnaire (ISQ). *Methods*. A cross-sectional survey was conducted on May 2018 GC on 105 pharmacy students at the University of Gondar, Northern Ethiopia. Data were collected using the suspected demographic information and the validated Instructional Skills Questionnaire (ISQ). Data were entered into IBM SPSS Statistics® version 25, and the results of the analysis were described using descriptive and inferential statistics. A letter of ethical approval was obtained from the ethical review board of the University of Gondar prior to data collection. *Results*. More than half (58.6%) of the participants were female, and 85.1% of the subjects aged between 21 and 25 years. The highest students' satisfaction was in the ISQ dimension of explication (58.03%) followed by instruction (56.13%) and comprehension (52.78). Student's *T*-test showed that extension (night-shift) students have a higher average satisfaction score (3.54 ± 0.34) compared to regular (day-shift) students (3.31 ± 0.41) (t (103) = 2.422, p = 0.017). Similarly, fourth-year students showed higher average satisfaction (3.54 ± 0.33) as compared to fifth-year students (3.28 ± 0.42) (t (103) = 3.41, p = 0.002). *Conclusion*. In the present study, a higher students' satisfaction was obtained about explication (58.03%) among seven ISQ dimensions, while students' satisfaction related to activation was minimal (49%). Students' satisfaction related to the learning outcome was found to be relatively high (67.23%). The study also showed that there is a significant difference in students' satisfaction within the different study programs and years of study. Hence, the instructors should work to improve students' satisfaction, thereby increasing the number of qualified professionals in the market.

1. Introduction

Quality healthcare is one of the most important factors in how individuals perceive their quality of life. In most countries, alongside the economy, it is the major political issue. In some countries, the healthcare delivery organization is a part of the national identity [1, 2].

In order to assure quality healthcare, there should be quality teaching. Educational system itself, class community, teaching methods, online learning, student community, student engagement, staff development, curriculum development, educational policy, local or global changes of the environment etc. are complex systems that might affect teaching-learning quality [3].

Students' changing expectations of higher education and the consequences of mismatches with reality lead to the question whether students are in the best position to judge aspects of quality, although students are well-equipped to judge certain aspects of the quality of the teaching-learning process [4].

The survey tool designed to assess quality of teaching should be precise and clear so as to avoid confusions and reduce participants' fatigue during data collection [5].

The situation has alerted and called the attention of researchers to bring to light the situation on the ground in universities by assessing the satisfaction of students [6].

The American College of Clinical Pharmacy (ACCP) believes that a consistent level of high-quality outcome-focused experiential education should be established. This education must encompass the knowledge, skills, and attitudes necessary for graduates to enter pharmacy practice in any setting. Schools of pharmacy should be accountable for the educational outcomes of their graduates to deliver pharmaceutical care [7]. Pharmaceutical care is a patient-centered practice that results in positive pharmacotherapeutic outcomes for patients through identification, resolution, and prevention of drug-related problems, as well as encouraging proper use of medications. The goal of pharmaceutical care is to optimize the patient's health-related quality of life [8]. By integrating the knowledge and skills, students will be able to acquire abilities in therapeutics when they become pharmacists [9, 10]. Emphasis placed on accountability for educational outcomes is vital to a superior education and in providing citizens with the highest quality care. In order to assure this, faculty members should evaluate whether students have achieved their attitudinal, behavioral, and knowledge learning outcomes [10].

Therefore, the present study aimed to explore how far the University of Gondar (UoG) provides quality pharmacy education based on the perspective of students using the validated Instructional Skills Questionnaire (ISQ) [11].

2. Main Text

2.1. Methods. The study was conducted during the month of May 2018 and included students from School of Pharmacy, University of Gondar. One hundred five pharmacy students were included. Students' participation was voluntary, but all of them participated. The paper-based questionnaire was used. Pharmacotherapy lectures are given in 4 semesters consequently as courses Pharmacotherapy I–IV, and assessment was made after immediate completion of the lectures.

The survey instrument was generated using the sociodemographic information and the validated ISQ. The ISQ consisted of seven dimensions of instructors' instructional skills and three student (self-perceived) learning outcomes. The seven dimensions include structure, explication, stimulation, validation, instruction, comprehension, and activation of the learning processes. Each of these assessment items provides four statements, except the student learning outcomes where only three statements were provided. After

a pilot study, changes were made to improve the assessment statements.

The ISQ employs a five-point Likert tool, in which the participant's responses were given values such that one is given for "strongly disagree," two for "disagree," three for "neither agree nor disagree" four for "agree," and "five" for "strongly agree" for positively worded statements and the reverse for negatively worded questions. Analysis was done using IBM SPSS Statistics® version 25 with descriptive and inferential statistics.

3. Results

In the present study, more than half of participants were female. Only 74 (70.5%) participants disclosed their age. The age ranged from 21 to 52, and the majority of the participants were in the age range of 21–25 (85.1%). Regarding the study program, the majority (78.1%) of the study subjects were enrolled in the regular program. The study was conducted on 4th- and 5th-year students since others did not finish the pharmacotherapy course as per the university curriculum. Fifth-year students represent 69.6% of the participants, and more than three-fourth of them were urban residents (Table 1).

Table 2 summarizes the 31 statements that elicit students' level of satisfaction using the seven ISQ dimensions on teaching behavior and student learning outcomes at the UoG Pharmacy School. The 7 ISQ dimensions include lecture structure, explication, stimulation, validation, instruction, comprehension, and activation, whereas student learning outcomes measure cognitive, affective, and regulative outcomes.

The level of satisfaction with regard to lecture structure was 52.08%. Satisfaction was positive towards the clarity of the lecture structure ($M \pm SD = 3.49 \pm 1.03$) and the instructors' ability to give clear summaries ($M \pm SD = 3.48 \pm 1.03$).

About 58.03% of the participants were satisfied with regard to explication. Majority of the students were satisfied with the subject matter explanation and clarity ($M \pm SD = 3.61 \pm 0.98$) and the ability of instructors to give clarifying examples ($M \pm SD = 3.59 \pm 1.01$).

Around half (49.18%) of the students were satisfied regarding stimulation. Students were satisfied with regard to instructors' interest on the subject matter ($M \pm SD = 3.48 \pm 1.03$) while disagreeing on the lectures being boring ($M \pm SD = 3.40 \pm 1.15$).

With respect to validation, 50.18% of the students were satisfied. They are more satisfied that instructors indicate the relevance of the subject matter ($M \pm SD = 3.86 \pm 4.01$) followed by the instructors showing the importance of the subject matter ($M \pm SD = 3.56 \pm 1.11$).

Regarding the instruction, students' satisfaction was 56.13%. The result showed that the instructors indicate which parts of the subject matter are essential ($M \pm SD = 3.58 \pm 1.11$) and it is clear what the instructors require of students ($M \pm SD = 3.45 \pm 1.05$).

Slightly more than half (52.78%) of the participants were satisfied with respect to comprehension. Students showed

TABLE 1: Demographic characteristics of the patients.

Variable	Category	Number (%)
Age	21–25 years	63 (85.1)
	26–30 years	8 (10.8)
	>30 years	3 (4.1)
Sex	Male	54 (51.4)
	Female	51 (58.6)
Study program	Regular	82 (78.1)
	Extension	23 (21.9)
Year of study	4th year	33 (31.4)
	5th year	72 (69.6)
Hometown	Urban	77 (76.2)
	Rural	24 (23.8)

TABLE 2: Attainment of satisfaction levels in each characteristic ($N = 105$).

SN	Characteristics	Strongly agree (5) n (%)	Agree (4) n (%)	Neither agree nor disagree (3) n (%)	Disagree (2) n (%)	Strongly disagree (1) n (%)	*Mean ± standard deviation	Overall satisfaction (%)
Structure								
S1	The lectures have a clear structure	11 (10.5)	56 (53.3)	15 (14.3)	19 (18.1)	4 (3.8)	3.49 ± 1.03	
S2	The instructors give clear summaries	10 (9.5)	57 (54.3)	16 (15.2)	17 (16.2)	5 (4.8)	3.48 ± 1.03	
S3	The subject matter is presented incoherently*	10 (9.7)	38 (36.9)	22 (21.4)	25 (24.3)	8 (7.8)	2.83 ± 1.14	52.08
S4	The lectures are unorganized*	11 (10.7)	19 (18.4)	23 (22.3)	39 (37.9)	11 (10.7)	3.19 ± 1.18	
Explication								
E1	The instructors explain the subject matter clearly	14 (13.5)	55 (52.9)	18 (17.3)	14 (13.5)	3 (2.9)	3.61 ± 0.98	
E2	The instructors are unclear*	6 (5.8)	12 (11.5)	25 (24.0)	45 (43.3)	16 (15.4)	3.51 ± 1.07	
E3	The instructors' explanations are hard to follow*	3 (2.9)	11 (10.8)	39 (38.2)	35 (34.3)	14 (13.7)	3.45 ± 0.96	58.03
E4	The instructors give clarifying examples	18 (17.1)	44 (41.9)	29 (27.6)	10 (9.5)	4 (3.8)	3.59 ± 1.01	
Stimulation								
S1	The lectures are boring*	6 (5.7)	20 (19.0)	23 (21.9)	38 (36.2)	18 (17.1)	3.40 ± 1.15	
S2	The instructors enliven the subject matter	7 (7.0)	37 (37.0)	39 (39.0)	14 (14.0)	3 (3.0)	3.31 ± 0.91	
S3	It is hard to stay focused on the lectures*	4 (3.8)	34 (32.7)	23 (22.1)	36 (34.6)	7 (6.7)	3.08 ± 1.05	49.18
S4	The instructors interest you in the subject matter	12 (11.4)	49 (46.7)	28 (26.7)	9 (8.6)	7 (6.7)	3.48 ± 1.03	
Validation								
V1	Little is said about the application of the subject matter*	12 (11.5)	31 (29.8)	20 (19.2)	32 (30.8)	9 (8.7)	2.95 ± 1.19	
V2	The instructors indicate the relevance of the subject matter	11 (10.5)	58 (55.2)	15 (14.3)	13 (12.4)	8 (7.6)	3.86 ± 4.01	
V3	The utility of the subject matter is hardly discussed*	11 (10.5)	38 (36.2)	25 (23.8)	18 (17.1)	13 (12.4)	2.85 ± 1.20	50.18
V4	The instructors show why the subject matter is important	16 (15.5)	52 (50.5)	17 (16.5)	10 (9.7)	8 (7.8)	3.56 ± 1.11	

TABLE 2: Continued.

SN	Characteristics	Strongly agree (5) n (%)	Agree (4) n (%)	Neither agree nor disagree (3) n (%)	Disagree (2) n (%)	Strongly disagree (1) n (%)	*Mean ± standard deviation	Overall satisfaction (%)
Instruction								
I1	The instructors are unclear about which aspects of the subject matter are important*	5 (4.8)	24 (23.1)	23 (22.1)	37 (35.6)	15 (14.4)	3.32 ± 1.13	
I2	It is often unclear what the main and side issues are*	6 (5.8)	25 (24.3)	20 (19.4)	37 (35.9)	15 (14.6)	3.29 ± 1.16	56.13
I3	It is clear what the instructors require of me	12 (11.5)	49 (47.1)	23 (22.1)	14 (13.5)	6 (5.8)	3.45 ± 1.05	
I4	The instructors indicate which parts of the subject matter are essential	18 (17.3)	50 (48.1)	17 (16.3)	12 (11.5)	7 (6.7)	3.58 ± 1.11	
Comprehension								
C1	The instructors provide insufficient occasion to ask questions*	4 (3.8)	27 (26.0)	28 (26.9)	33 (31.7)	12 (11.5)	3.21 ± 1.08	
C2	The instructors encourage students to ask questions about the subject matter	22 (21.0)	54 (51.4)	19 (18.1)	7 (6.7)	3 (2.9)	3.81 ± 0.94	52.78
C3	The instructors check whether students understand the subject matter	16 (15.2)	51 (48.6)	23 (21.9)	9 (8.6)	6 (5.7)	3.59 ± 1.04	
C4	The instructors hardly address the students' comments*	11 (10.6)	32 (30.8)	28 (26.9)	20 (19.2)	13 (12.5)	2.92 ± 1.20	
Activation								
A1	Students are encouraged to think along during the lecture	8 (7.6)	55 (52.4)	19 (18.1)	18 (17.1)	5 (4.8)	3.41 ± 1.02	
A2	The instructors provide little opportunity for discussions*	8 (7.6)	32 (30.5)	23 (21.9)	31 (29.5)	11 (10.5)	3.05 ± 1.16	49
A3	During the lectures there is hardly any occasion to discuss the subject matter*	6 (5.7)	38 (36.2)	32 (30.5)	22 (21.0)	7 (6.7)	2.87 ± 1.03	
A4	The instructors involve students in the lecture	12 (11.9)	57 (56.4)	20 (19.8)	6 (5.9)	6 (5.9)	3.62 ± 0.98	
Student learning outcomes								
O1	Cognition: I learned a lot from the lectures	21 (20.0)	55 (52.4)	15 (14.3)	7 (6.7)	7 (6.7)	3.72 ± 1.07	
O2	Affection: because of the lectures, I want to learn more about the subject matter	22 (21.0)	44 (41.9)	24 (22.9)	7 (6.7)	8 (7.6)	3.62 ± 1.12	67.23
O3	Regulation: because of the lectures, I now know what I have yet to study	27 (26.0)	42 (40.4)	22 (21.2)	7 (6.7)	6 (5.8)	3.74 ± 1.10	

*Note that negative statements are given reverse values such that strongly agree (SA) = 1, agree (A) = 2, neutral = 3, disagree (DA) = 4, and strongly disagree (SD) = 5.

more satisfaction rate regarding instructors' encouragement on students to ask questions about the subject matter ($M \pm SD = 3.81 \pm 0.94$) followed by checking whether students understand the subject matter ($M \pm SD = 3.59 \pm 1.04$).

A lower overall satisfaction (48.53%) was obtained with activation parameters. Students appeared to be more dissatisfied on the statement which says "during the lectures there is hardly any occasion to discuss the subject matter" ($M \pm SD = 2.87 \pm 1.03$).

On the contrary, the study result showed a great student satisfaction rate (67.23%) regarding students' learning

outcomes as compared to the other characteristics. The cognition, affection, and regulation outcomes were assessed, and the majority of students were satisfied in these three statements. The overall students' satisfaction in each subgroup assessment tool is also summarized in Figure 1.

Student's t-test was performed to analyze the difference in satisfaction across different groups of students. Accordingly, extension (night-shift) students showed higher average satisfaction score (3.54 ± 0.34) compared to regular (day-shift) students (3.31 ± 0.41) (t (103) = 2.422, $p = 0.017$). Similarly, fourth-year students showed higher
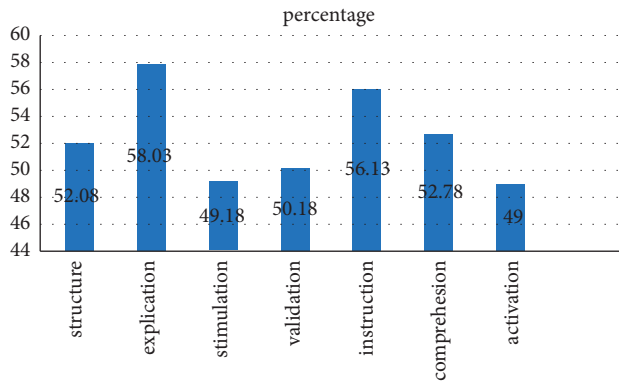
FIGURE 1: Percentage of students' satisfaction using the seven ISQ dimensions.

average satisfaction (3.54 ± 0.33) as compared to fifth-year students (3.28 ± 0.42) (t (103) = 3.41, p = 0.002).

4. Discussion

The effectiveness in learning, like all other aspects of human behavior, is highly related to obtaining satisfaction by the learner [12]. Hence, most teaching institutions have carried out a variety of research projects with an increased concern being placed upon students' satisfaction [13]. The issue has gained popularity in recent years, and research findings have established that student ratings can be a reliable and valid indicator of effective teaching [11, 12, 14, 15].

Student satisfaction assessment is vital in determining service quality at academic institutions. To remain competitive, it requires the academic institutions to continuously acquire, maintain, and build stronger relationships with students [10]. Therefore, the study aimed to understand the quality of theory-based pharmacotherapy lectures delivered by their instructors and the clinical pharmacy students' satisfactions towards instructional teaching skills at UoG.

Choosing reliable and quantifiable indicators to assess the quality of one's teaching and the efficiency of teaching initiatives remains challenging. Various student satisfaction tools are employed to assess satisfaction of students on lectures, which are the foundation for future success and final graduation. Of these, we employed the validation tool, ISQ, since it is validated, used by many researchers, and user friendly [11]. Using ISQ, one can provide instructors with immediate, specific, and reliable feedback on their teaching and on differences between student learning outcomes during a course. In addition, researchers can use ISQ to measure differences in efficiency among instructors in academic institutions.

Average satisfaction on each item of ISQ was calculated where the larger the number is, the higher the level of satisfaction on the subject will be. Overall satisfaction on each component was also estimated from the percentage of positive response on each item. For instance, satisfaction was found to be highest about the clarity of the structure of the lecture (mean ± SD = 3.49 ± 1.03), while the overall satisfaction about lecture structure was 52.08%. However,

satisfaction is low with subject matter coherence (mean ± SD = 2.83 ± 1.14). Since coherence of topics in a course is largely dependent on the structure of the course module, emphasis should be given to course coherence in addition to content during development and revision of curriculums. Thus, subject matter incoherence is common in many institutions and it has a detrimental effect on students' performance in the institution and their future work as well [16–18].

Similarly, regarding explication, "the instructors explain the subject matter clearly" was the most agreed-upon statement (mean ± SD = 3.61 ± 0.98), while the overall satisfaction was 58.03%. The highest and lowest satisfaction levels were recorded with explication (58.03%) and activation (49%), respectively. Activation stands for "the extent to which the instructor encourages students to actively think about the subject matter" [11]. This might be due to the training level of the instructors since many of them have learnt using the teacher-centered approach. The activation aspect is more related to the student-centered teaching philosophy and thought to be an emerging philosophy which transforms the performance of academic institutions in view of developing universally competent professionals [19]. This dimension needs to be improved by using different techniques such as introducing small group discussion and peer instruction (also called "Think Pair-Share" or "Concep Tests"), interactive lecture demonstrations (ILDs), case studies, concept mapping, tutorial worksheets, problem-based learning, analytical challenge before lecture (also called "invention activities"), problem sets in groups, and random calling in class [19–23]. The study also showed that student satisfaction related to learning outcomes was found to be relatively high (67.23%).

Student's T-test was performed, and the results showed that extension (night-shift) students have higher average satisfaction score (3.54 ± 0.34) compared to regular (day-shift) students (mean ± SD = 3.31 ± 0.41, t (103) = 2.422, p = 0.017). The higher satisfaction among extension students might be due to the fact that most of the extension students were giving practice to pharmacy technicians who joined the Bachelor of Pharmacy program to advance their professional level. As a result, this group of students are expected to be more familiar to the topics covered in pharmacotherapy courses which could result in more understanding, engagement, and, hence, satisfaction of students from the lectures.

In addition, a higher average satisfaction score was observed among fourth-year students. This may be attributed to the difference in the timing of pharmacotherapy course delivery between fourth-year and fifth-year students relative to the data collection. According to the Nationally Harmonized Modular Curriculum for Bachelor Degree in Pharmacy, pharmacotherapy courses are delivered at the fourth year of the program [24]. Therefore, this study was conducted while the fourth-year students were taking the courses, whereas the fifth-year students had completed the courses in the preceding semesters. Thus, the fact that fourth-year students were acquiring a new set of knowledge from the courses during the study while fifth-year students

had to reevaluate their satisfaction might have resulted in the higher mean satisfaction score among fourth-year students.

5. Conclusion

In conclusion, a higher students' satisfaction was obtained about explication (58.03%) among seven ISQ dimensions, while students' satisfaction related to activation was minimal (49%). Students' satisfaction related to the learning outcome was found to be relatively high (67.23%). The study also showed that there is a significant difference in students' satisfaction within the different study programs and years of study. Hence, the instructors should work to improve students' satisfaction, thereby increasing the number of qualified professionals in the market.

Abbreviations

ACCP: American College of Clinical Pharmacy
ISQ: Instructional Skills Questionnaire
UoG: University of Gondar.

Data Availability

All of the required data will be available upon request to the corresponding author.

Additional Points

Limitations. (i) The study is conducted in a single institution. (ii) The sample size is small. (iii) One of the co-authors was giving lectures at the study setting and might lead to bias to some extent.

Ethical Approval

The research was reviewed and approved by the University of Gondar, School of Pharmacy Ethics Review Board with reference number ERB/SoP/057/18.

Consent

Written informed consent was obtained from each participant.

Conflicts of Interest

The authors declare no conflicts of interest.

Authors' Contributions

All authors contributed equally to the reported work, in the concept and design of the research, execution, data collection, analysis, and interpretation and engaged in the drafting and critical review of the paper.

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